

CLAIMS:

1. A flexible foil which is moveable by means of light, comprising a dye which is capable of changing shape when absorbing light of a predetermined wavelength, the dye being anisotropically-oriented near at least one major surface of the foil and exhibiting, transverse to the foil, an asymmetric change in concentration and/or orientation, such that the foil moves when absorbing light of a predetermined wavelength.
2. A flexible foil as claimed in claim 1 wherein the dye is capable of changing from a first shape to a second shape when absorbing light of the predetermined wavelength, and capable of changing from the second shape to the first shape by means of light of a different wavelength than the predetermined wavelength or by means of heat or combination thereof, rendering the foil reversibly moveable.
3. A flexible foil as claimed in claim 2 wherein the dye is a photo-isomerizable dye.
4. A flexible foil as claimed in claim 3 wherein the dye is an azo-benzene dye.
5. A flexible foil as claimed in claim 1, 2, 3 or 4 wherein the dye is dispersed in a polymerized liquid crystal.
6. A flexible foil as claimed in claim 1, 2, 3, 4 or 5 comprising a stack layers having a concentration and/or an orientation of the dye which differs between different layers of the stack.
7. A flexible foil as claimed in claim 1, 2, 3, 4 or 5 wherein the concentration and/or orientation of the dye changes gradually.

8. A flexible foil as claimed in claim 7 wherein the dye is splay oriented with a planar orientation near one major surface of the foil and a homeotropic orientation near another major surface opposite the one major surface.

5 9. A flexible foil as claimed in claim 1, 2, 3, 4, 5, 6, 7 or 8 wherein the flexible foil is attached to a structure which is fixed relative to the movement of the foil.

10. A flexible foil as claimed in claim 9, wherein the flexible foil is a valve switchable between a closed and an open state.